

Sherman et al. is directed to the transfer of energy from an ultrasonic device having a catheter to biological tissue. A temperature sensor, which is mounted in the distal end of the catheter, senses temperature and provides a temperature sensing signal. (Col. 3, lines 54-62.) When the temperature goes above a predetermined threshold, a processor decreases a power drive level. (Col. 4, lines 13-16.) The temperature sensor 28, which may be a thermocouple 33, is shown in Figs. 2 and 3. (See col. 6, lines 15-16 and 41-42.)

Sherman et al. does not teach, or even suggest, determining a shunt capacitance of the transducer, or calculating the temperature of the transducer based on the shunt capacitance of the transducer, as required by the claims of the present invention. Sherman et al. senses temperature using traditional temperature sensors such as thermocouples. Thus, Sherman et al. is more like the traditional methods described in the background section of the application than like the present invention.

Contrary to the Examiner's position, cols. 15 and 16 of Sherman et al. do not teach determining temperature based on a capacitance of the transducer. The transducer and device are designed to resonate at a certain frequency. Sherman et al. describes sweeping through a frequency range in order to identify resonant frequencies of the transducer. This frequency sweep does not relate to measuring any capacitance or determining temperature. Thus the claims are patentable over Sherman for at least this reason.

Further, Sherman et al. does not teach or suggest providing a warning to a user of the hand piece if one of the temperature of the transducer and a rate of change of the temperature is excessive. Rather in Sherman et al., when the temperature goes above a predetermined threshold, a processor decreases a power drive level. The claims are therefore patentable over Sherman et al. for this additional reason.

Many of the dependent claims recite additional features of determining the shunt capacitance of the transducer, and/or of calculating the temperature of the transducer based on the shunt capacitance. Since Sherman et al. does not teach or suggest determining the shunt capacitance

or calculating the temperature of the transducer based on the shunt capacitance, it necessarily follows that Sherman et al. does not suggest these additional features. The dependent claims are therefore patentable over Sherman et al. for these additional reasons.

Regarding claim 11, the Examiner additionally applies Benndorf as allegedly teaching storing a “capacitance frequency” in memory. First, claim 11 recites that the capacitance at an off-resonance frequency is stored in memory, and not a “capacitance frequency” as asserted by the Examiner. Also, Benndorf does not teach or suggest storing a capacitance in memory, as asserted by the Examiner. Benndorf teaches storing current values. See for example, col. 2, lines 45 and 50. Thus, claim 11 is patentable over the applied references for this additional reason.

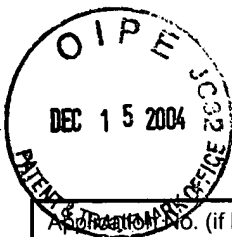
In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: December 15, 2004

Respectfully submitted,

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Application No. (if known): 09/975,390

Attorney Docket No.: 02640/100G822-US1

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